

PV - Assembly and Installation

Slide rail system



Summary

Technical data

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1. TECHNICAL DATA

Model	Height	Weight	Length	Material	Load capacity	Wind resistance
SR100	1000	150	3000	Aluminum	1000kg	1500Pa
SR1200	1200	200	3000	Aluminum	1200kg	1800Pa
SR1500	1500	250	3000	Aluminum	1500kg	2200Pa
SR1800	1800	300	3000	Aluminum	1800kg	2600Pa

2. ASSEMBLY

3. MOUNTING

4. INSTALLATION KINEMATICS

5. PITS

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Assembling

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2. ASSEMBLY

The assembly of the slide rail system is a simple task. It is recommended to use a crane for the lifting of the slide rail system.

3. MOUNTING

The slide rail system is mounted on a concrete base. The mounting is done by using the mounting brackets and the slide rail system.

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Mounting

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3. MOUNTING

The slide rail system is mounted on a concrete base. The mounting is done by using the mounting brackets and the slide rail system.

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Installation kinematics

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4. INSTALLATION KINEMATICS

The installation kinematics of the slide rail system are described in this section. It shows how the slide rail system is installed in a trench.

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Pits

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5. PITS

The slide rail system can be used in pits. It is recommended to use a crane for the lifting of the slide rail system.

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A. General information

The PV parallel slide system is available in single rail (EGPV) and double rail (DGPV) versions, single and double guide respectively.

These systems **are installed by « dig & push » method**, without vibration, using the mechanical shovel excavator.

This system enables :

- ensure the safety of those working in the trench,
- ensure the stability of the surrounding ground and nearby dwellings or buildings (buried structures, roads, buildings),
- limit the size of the trench,
- to have a continuous, jointed length that limits water ingress,

All our products comply with the following standards:

- **DIN EN 13331 part 1 & 2**
- **DIN 4124**
- **TBG approval (German standardisation)**

B. Lifting & transportation

All the components of trench lining system have rings and handling points.
The equipment must only be handled using these handling points.

Handling chains are preferable to cable slings.

Handling chains must correspond to the weight to be handled and the length of the components.

To avoid accidental unhooking of the load, it is strongly recommended that self-closing hooks. Slings must be in compliance, periodically checked and certified.

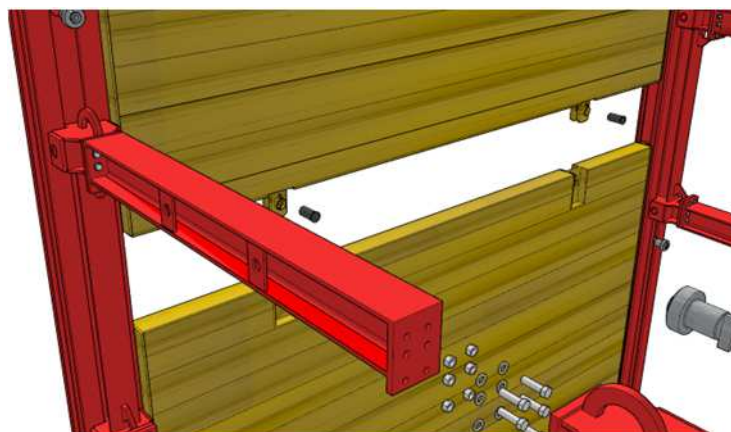
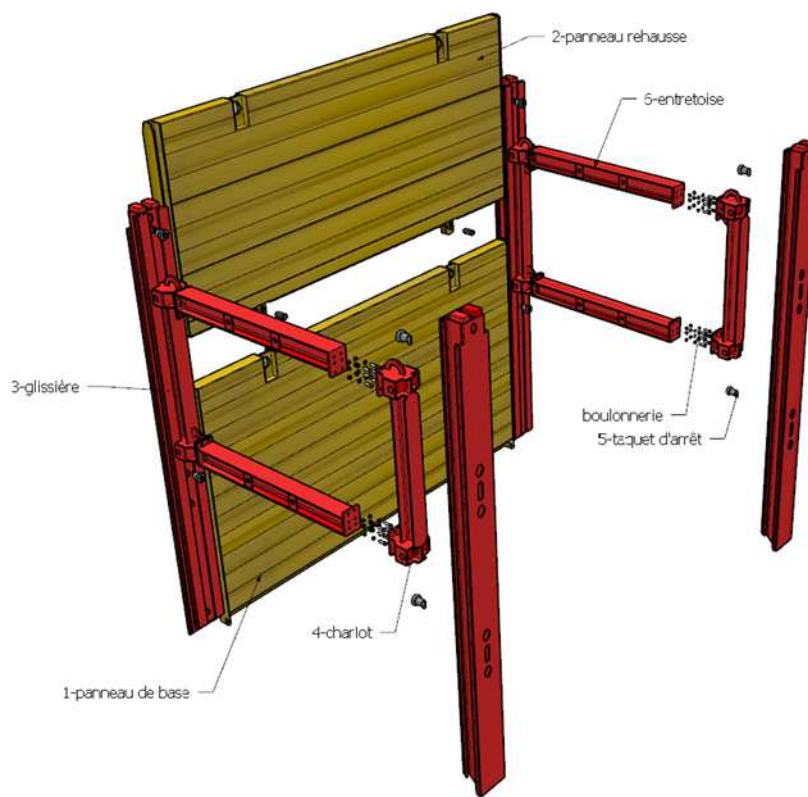
The equipment must be stored flat on the ground, preferably on wooden racks to make it easier to grip.

During handling by the excavator or crane, it is forbidden to stand under the load.

Make sure you have a clear area for safe handling of loads, such as poles, electric cables, catenaries, buildings, traffic, etc.

C. Nomenclature and specifications

EGPV
(single rail)



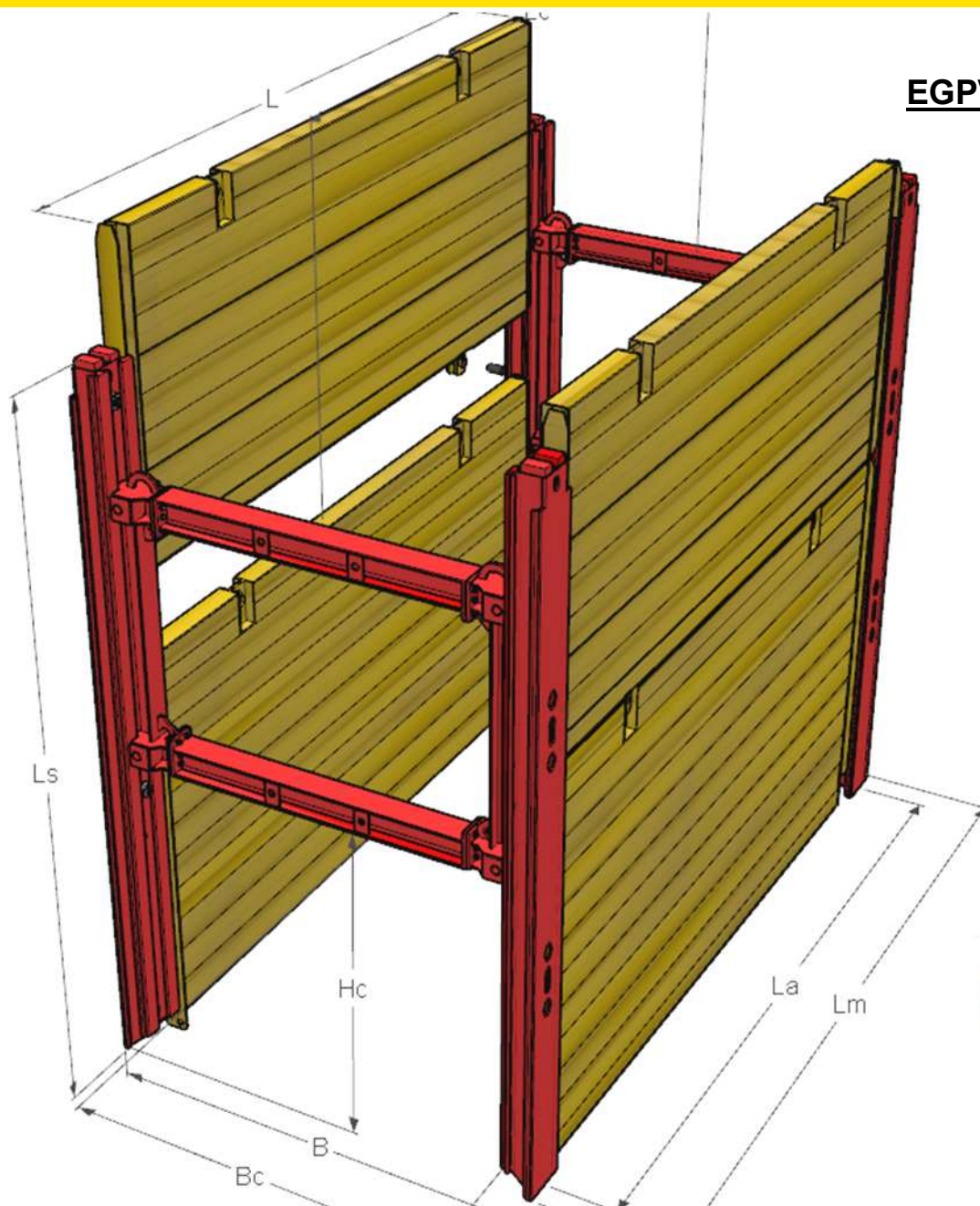
Position	Designation	Type
1	Base plate	KRU
2	Top plate	KRU A
3	Slide rail	EGPV
4	Sliding frame	SL PV R
5	Stopper	
6	Spacer	HEB160
31	Nuts and bolts	M16*70 HV (clé24)

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EGPV 4000



Conformité
DIN 4124
DIN EN 13331

H	Height panel
L	Length panel
L _c	Pipe culvert length
L _s	Length slide rail
L _m	Exterior length
b _c	Inner working width
b	Shoring width Till 4.00 m
h _c	Pipe culvert height

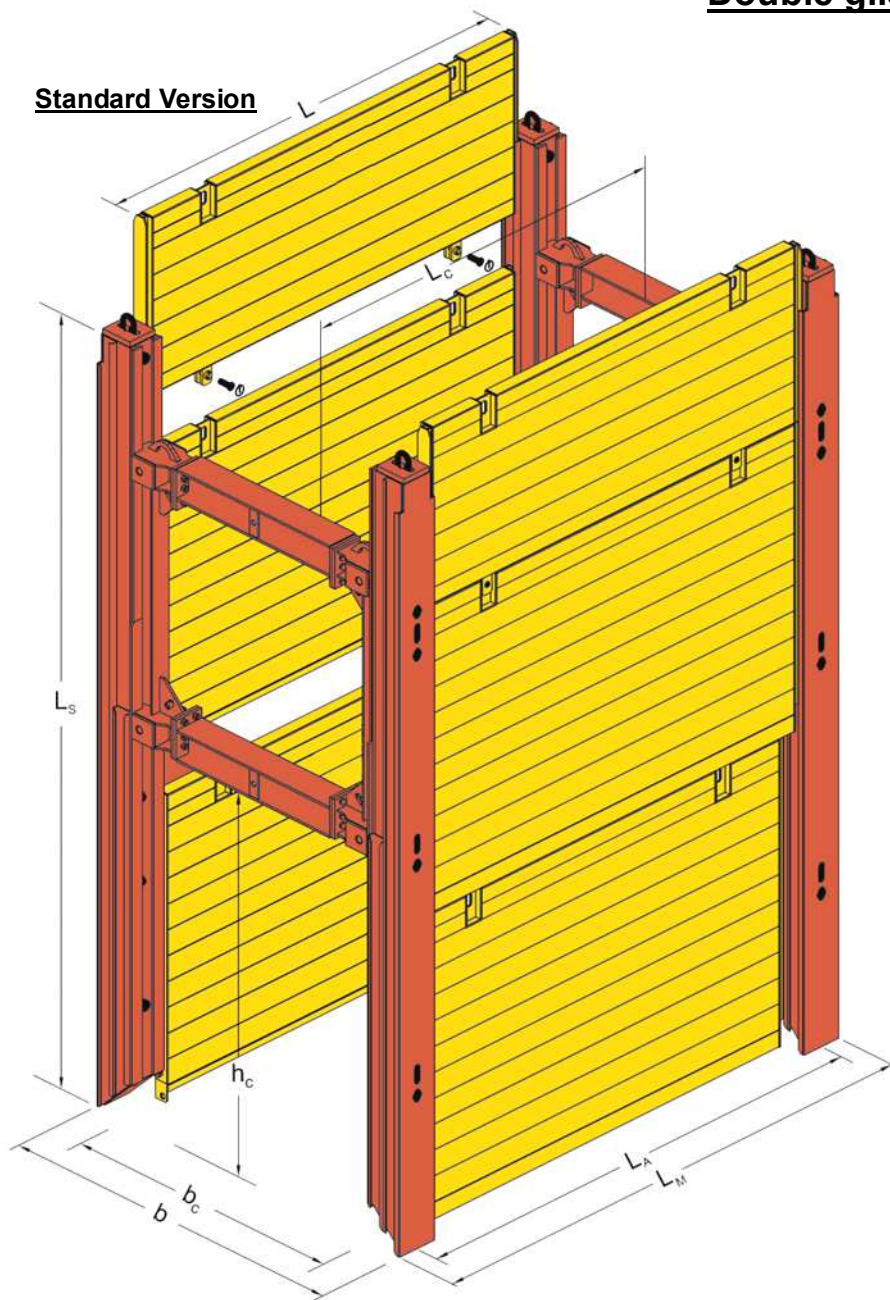


PV - Assembly and Installation

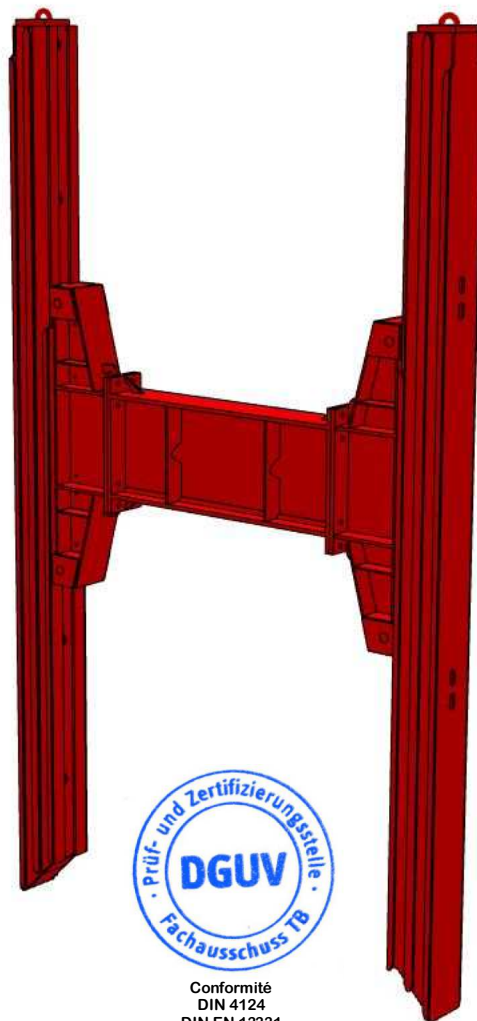
Slide rail system



Double glissière DGPV 4800/6000/7500



Monobeam Version « H-sliding frame »



H	Height panel
L	Length panel
L _c	Pipe culvert length
L _s	Length slide rail
L _m	vExterior length
b _c	Inner working width
b	Shoring width Till 4.00 m
h _c	Pipe culvert height



PV - Assembly and Installation

Slide rail system



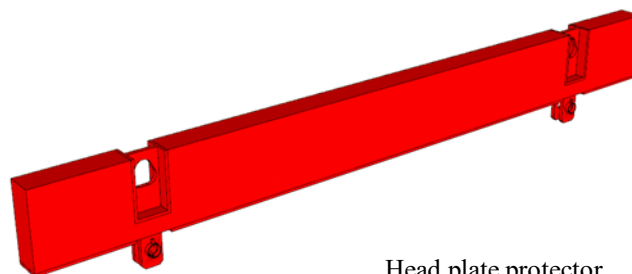
D. PANELS

Base plate LxH	Unit Weight	Thickness t_{pi}	Unit Weight	Lenght L_M	Horizontal clearance L_c	Limite state design load e_d
[mm]	[mm]	[mm]	[kg]	[mm]	[mm]	[kN/m ²]
KR 2000	2400	100	510	2562	2030	171.6
KR 2500			605	3062	2530	110.4
KR 3000			690	3562	3030	81.1
KR 3500			805	4062	3530	56.6
KR 4000	2400	120	1170	4562	4030	71.0
KR 4500*			1305	5062	4530	56.2
KR 5000*			1635	5562	5130	73,1
KR 5500*			2090	6062	5530	70,2
KR 6000*			2235	6562	6030	59,1
KR 6250*			2360	6812	6280	54,9
KR 6500*			2455	7062	6530	50,3
KR 7500*	2400	150	3276	8062	7530	50,9
Top plate**						
KRA 2000	2400	100	335	2562	2030	171.6
KRA 2500			400	3062	2530	110.4
KRA 3000			450	3562	3030	81.1
KRA 3500			525	4062	3530	56.6
KRA 4000	2400	120	745	4562	4030	71.0
KRA 4500			830	5062	4530	56.2
KRA 5000			1020	5562	5130	73.1
KRA 5500			1285	6062	5530	70,2
KRA 6000			1395	6562	6030	59,1
KRA 6250			1445	6812	6280	54,9
KRA 6500			1515	7062	6530	50,3
KRA 7500	2400	150	2370	8062	7530	50,9

For other dimensions, please contact us.

*Available in high resistance with a different class of steel at the time of manufacture.

**Available in 1.60 m and 1.80 m heights.



Head plate protector

Tensile forces

- Lifting eyes at the plate head $R_d = 229 \text{ kN}$
- Bottom eyes at the plate $R_d = 47 \text{ kN}$

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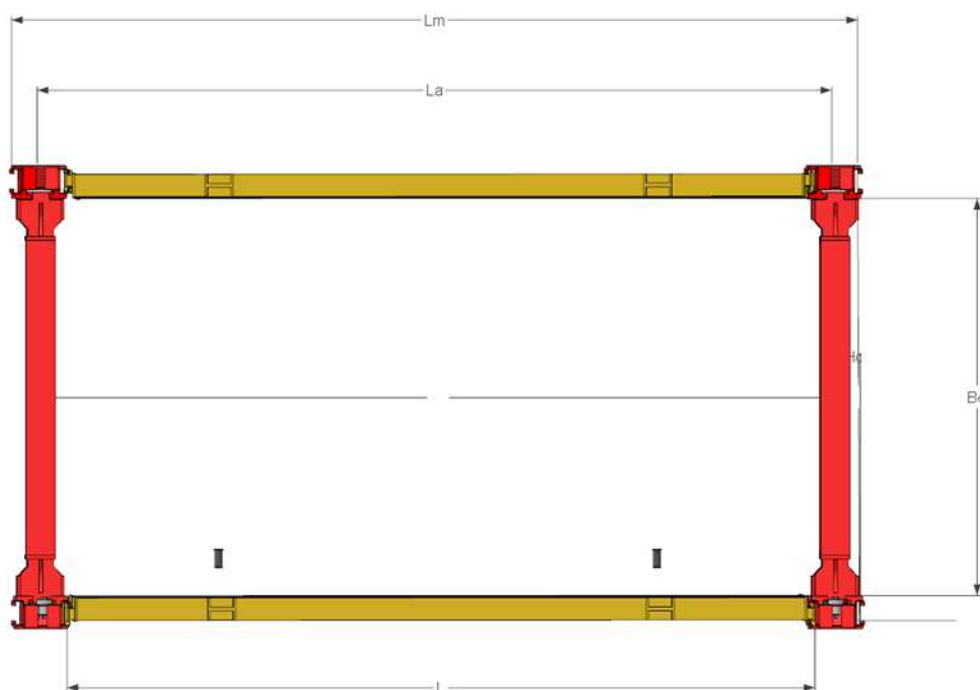


E. SLIDE RAIL

Single slide rail EGPV HD			
Length	Thickness	Limit state design moment	Weight
[mm]	[m]	[kNm]	[kg]
4000	0,19	338	545



EGPV



Spacer standard Frame (2*HEB 160)			
Length	working width bc	shoring width b	Weight
[m]	[m]	[m]	[kg]
none	0,45	0,80	-
0,25	0,70	1,05	22
0,50	0,95	1,30	35
1,00	1,45	1,80	57
1,50	1,95	2,30	78
2,00	2,45	2,80	101

Tensile forces

- Lifting eyes at the rail head $R_d = 226 \text{ kN}$

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Double slide rail DGPV HD			
Length	Thickness	Limit state design moment	Weight
[mm]	[m]	[kNm]	[kg]
4800	0,32	1020	1075
5500			1230
6000			1335
7000			1555
7500	0,33	1106	1780

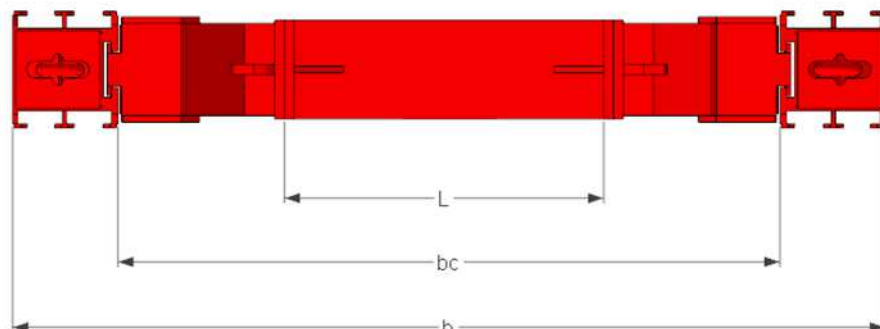
Spacer standard Frame (2*HEB 240)			
Length	working width bc	shoring width b	Weight
[m]	[m]	[m]	[kg]
none	0,73	1,36	-
0,50	1,23	1,86	48
1,00	1,73	2,36	116
1,50	2,23	2,86	157
2,00	2,73	3,36	203

Spacer H-frame (HEA 700)			
Length	working width bc	shoring width b	Weight
[m]	[m]	[m]	[kg]
none	1,10	1,74	-
0,50	1,60	2,24	241
1,00	2,10	2,74	371
1,50	2,60	3,24	475
2,00	3,10	3,74	580

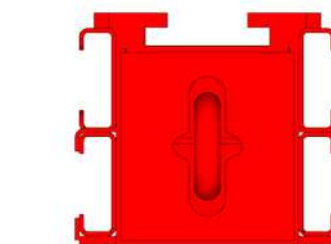
Standard rolling frame	
roller spacing	weight
[m]	[kg]
2,00	308
2,80	343

H-rolling frame	
roller spacing	weight
[m]	[kg]
1,80	460

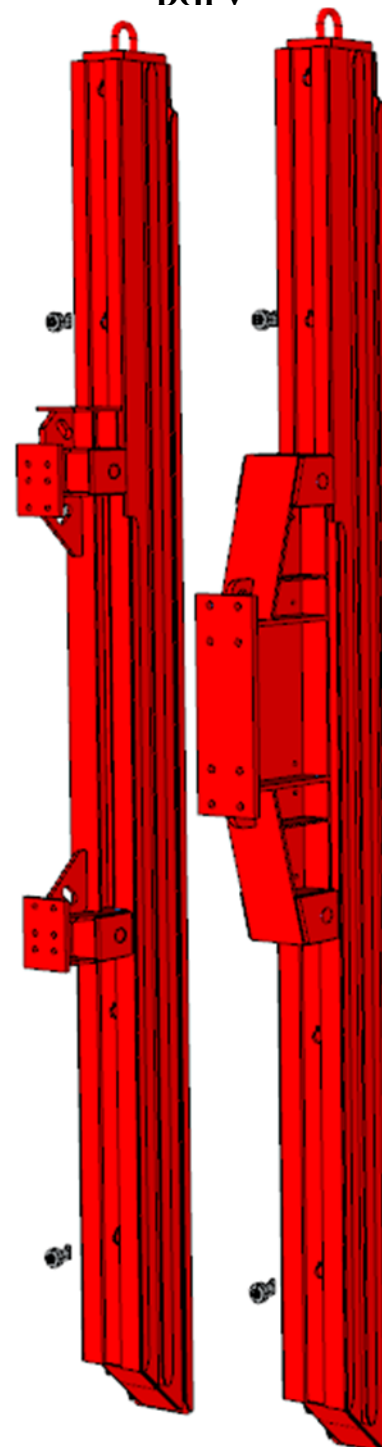
*with DGPV 7000 and 7500.



For other dimensions, please contact us.



DGPV



standard rolling frame
Double beam HEB240

H-rolling frame
Monobeam HEA700

F. ASSEMBLING

For reasons of space requirements and safety during loading, unloading and transport, shoring arrives on site unassembled.

The first thing to do is to assemble a gantry consisting of a slide and carriage assembly.

An excavator or forklift is needed for assembly, as well as handling slings and a spanner, bastings and 2 or 3 people.

As shown in the drawing below, screw the spacers rigidly to the trolley according to the required width.

✘	EGPV	HEB160 M16*70HV	spanner 24
✘	DGPV	HEB240 M24*85HV	spanner 36/ou 41
✘	DGPV-H	HEA700 M30*105HV	spanner 46

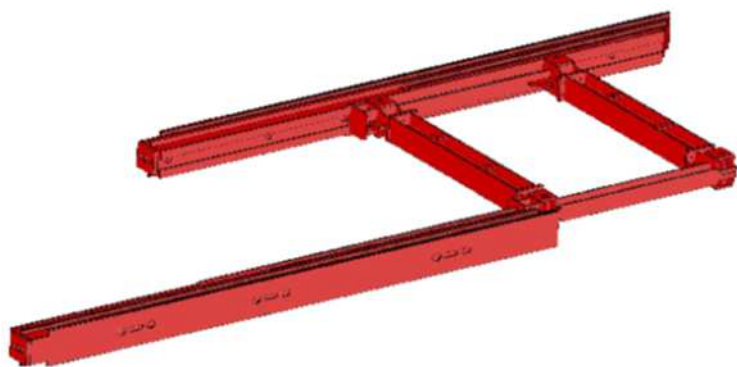


1. Assembling the spacers and runners to form a rigid parallelogram-shaped carriage.

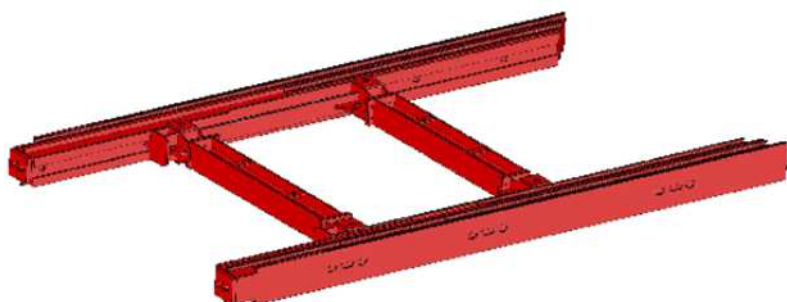


2. Insert the carriage by sliding it along its length and locking it with the stopping bolt, inserting them into the corresponding holes and turning them a quarter turn..

Differentiate the top of the trolley by its handling point.



3. Slide in the second rail and secure it in the same way using the locking bolts.



4. The same assembly must be carried out for all the gantries.

A low trolley position is preferred to facilitate subsequent handling.

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For safety reasons, the gantry will be assembled on the ground.

No work under load.

Choose a flat surface of appropriate size for mounting the gantries.

Required tools :

- ✘ 2-arm chain sling
- ✘ 4-arm chain sling (optional)
- ✘ Mining rod
- ✘ Bastaings
- ✘ Flat and ratchet spanner
- ✘ Handling ring kit

1/ Presentation of a spacer to bolt onto the carriage.
(flat spanner + ratchet spanner).

2/ Approach of the 2nd spacer.

3/ Introducing the 2nd spacer.

4/ Bolt spacer to carriage.

5/ Introducing the 2nd trolley.

Note the direction of the trolley - lifting rings on top.

6/ Bolt the spacer to the carriage.

7/ Turn the assembly over (pre-assembled parallelogram).

8/ Bolt and tighten the nuts in the holes that were face down.

9/ Present a first slide.

10/ Lay the slide rail down using the mounting rings (**handling kit**).

11/ Insert the first slide rail into the rolling frame.

12/ Slide the rolling frame, taking care to position the lifting rings at the top.

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All the components of the shoring have rings and anchoring points. The equipment must only be handled at these points.



The first elements are crucial to the successful completion of the trench. It is then essential that you apply yourself to the installation of the 1st portal frame.

Mounted gantry frames will be handled using lifting chain slings and hooks located on the guide rails or on the trolleys.



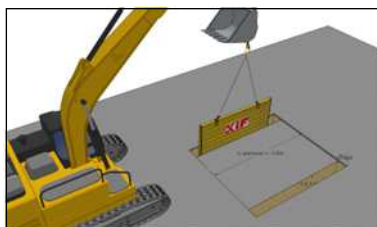
Handling chains must correspond to the weights to be handled. The ends should be fitted with automatic clevis hooks. The sling opening angles must be respected.

Remember: take the time you need to install the first elements. This precaution and particular attention will save time for the rest of the site when it comes to extracting the material and rotating it; the workrate will be even faster as a result.

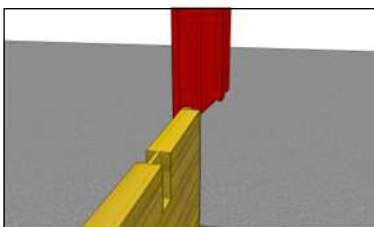
Check the bolts and nuts and retighten if necessary during the work, as the equipment rotates.

G. INSTALLATION KINEMATICS

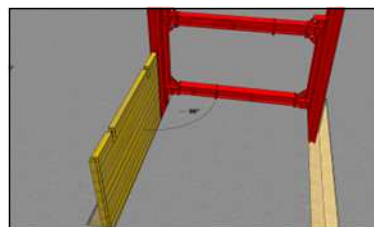
Current trench



1. Pre-excavate to a depth of ~1.30m, depending on the nature of the ground, for the length of a panel + 1m and the width required (or make trenches). Position a panel horizontally, cutting inwards, against the wall, then stabilise it.



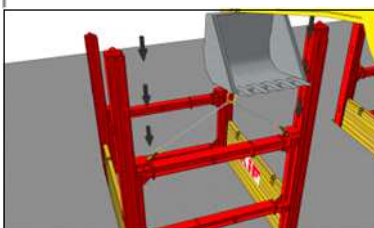
2. Engage the pre-assembled gantry on the end of the panel, in the outer rail (keep a right angle).



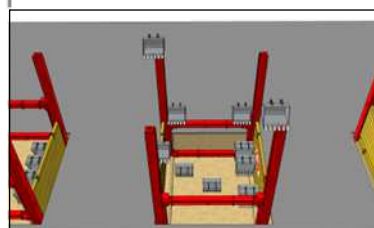
3. Insert perpendicular panel. If you are using a double slide rail, these panels must slide into the outer rails.



4. Engage opposite panels, parallel to the first, in the outer rail.



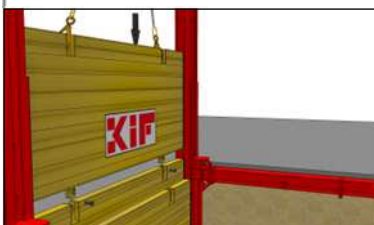
5. Engage the 2nd pre-assembled gantry at the other end of the panels, in the outer rails.



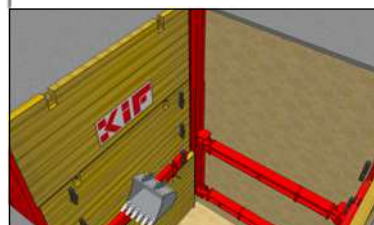
6. Work inside the shoring, pressing alternately on each component.



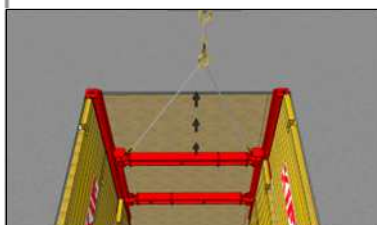
7. When the top of the panel reaches the natural ground level +10cm, snap the inner panels into the inner inside rails.



8. Depending on the depth to be reached, top plates will be required.



9. Continue excavating, pressing down on all the components except the outer panels. Be sure to use the plate protector..



10. Once the system had reached the bottom of the excavation, the trolleys were hauled up.



11. Move on to the next section by snapping the panels into place. Repeat the operation for the desired length of shoring.



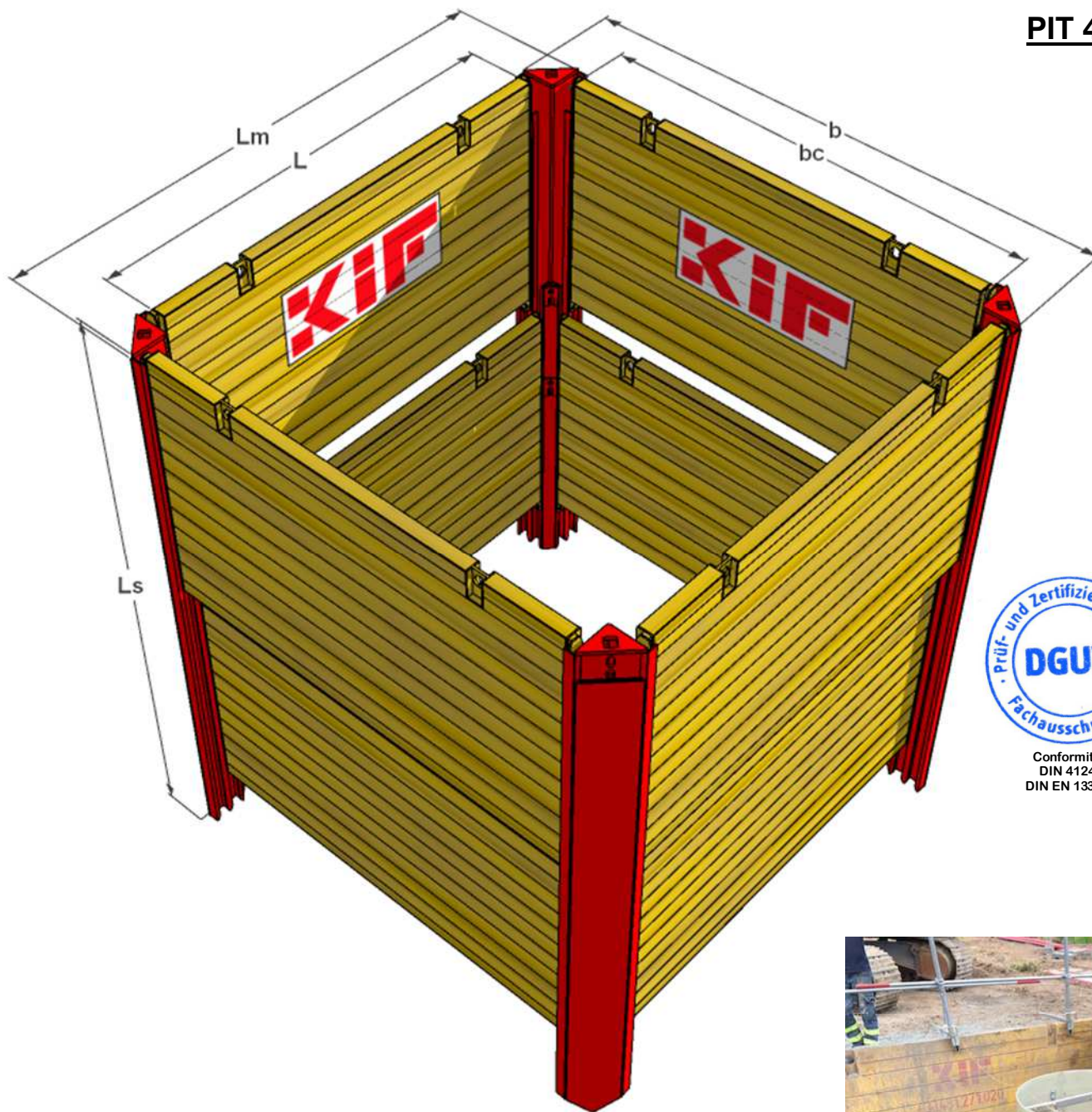
12. The elements are laid, then backfilled and compacted in successive passes of ~50cm, to avoid decompression and surrounding disorders. Extraction is carried out in the opposite direction to laying.

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PIT 4 FACES



Conformité
DIN 4124
DIN EN 13331

L	Length panel
Ls	Length slide rail
L _M	Exterior length
bc	Inner working width
b	Shoring width



PV - Assembly and Installation

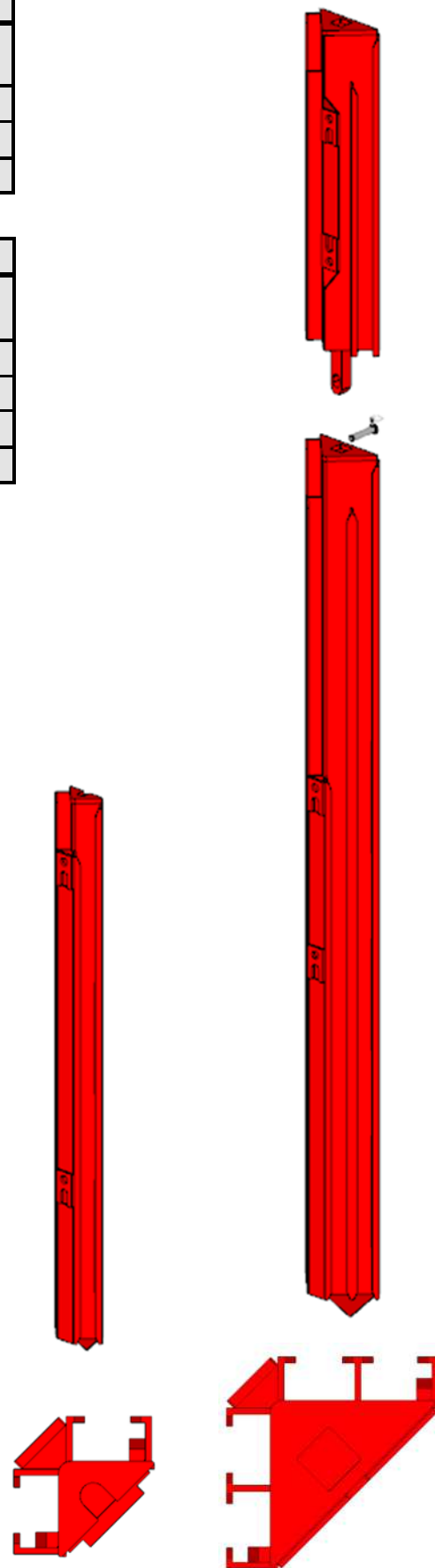
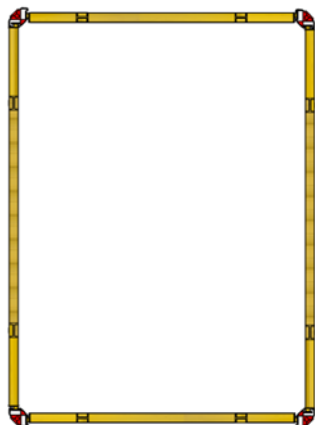
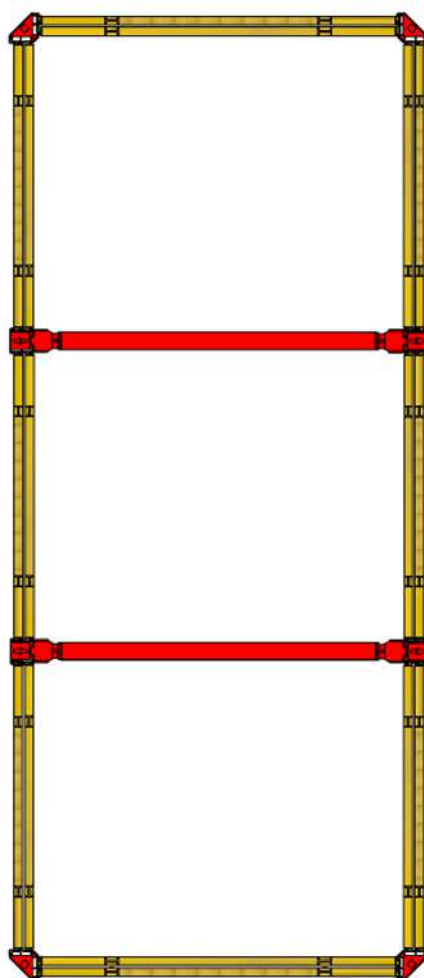
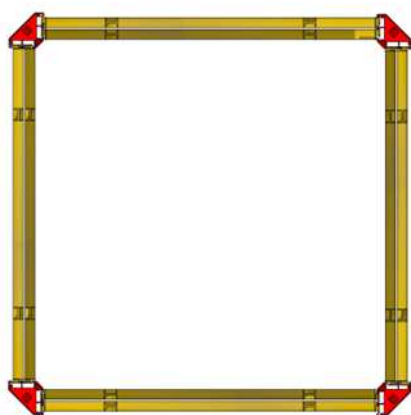
Slide rail system



Single corner rail EGECK HD			
Length	Thickness	Limit state design moment	Weight
[mm]	[m]	[kNm]	[kg]
3500	0,22	147	360
4000			403

Double corner rail DGECK HD			
Length	Thickness	Limit state design moment	Weight
[mm]	[m]	[kNm]	[kg]
4500	0,31	363	715
5500			840
2000 top rail	0,24	322	315

Numerous possible combinations:

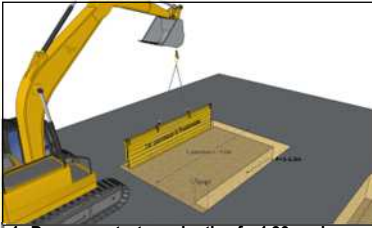


PV - Assembly and Installation

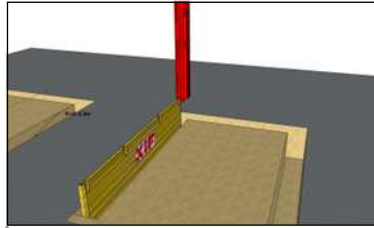
Slide rail system



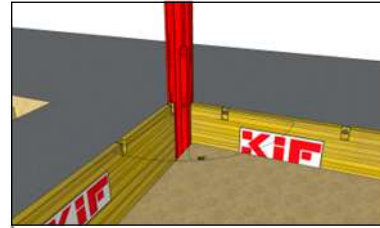
Shoring pit 4 faces



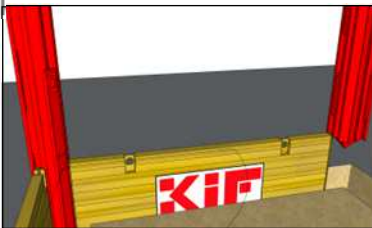
1. Pre-excavate to a depth of ~1.30m, depending on the nature of the ground, for the length of a panel + 1m and the width required (or make trenches). Position a panel horizontally, cutting inwards, against the wall, then stabilise it.



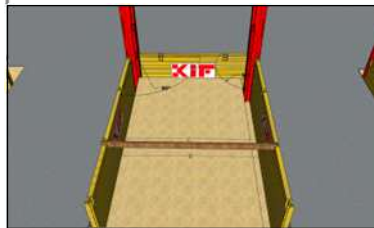
2. Introducing the 1st corner slide.



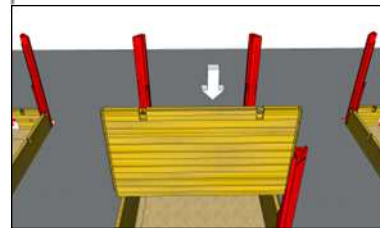
3. Insert perpendicular panel. If you are using a double slide rail, these panels must slide into the outer rails.



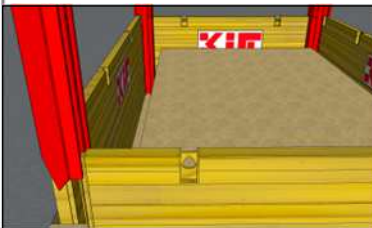
4. Fitting a second corner rail.



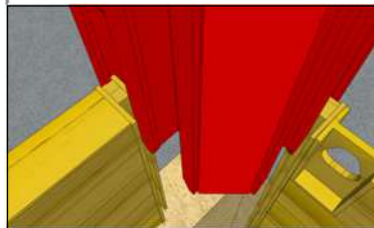
5. Engage the 3rd panel parallel to the 1st, cutting edge towards the inside of the excavation.



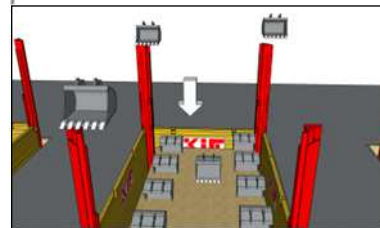
6. Position the fourth panel; make sure it is horizontal.



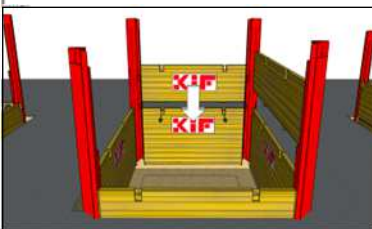
7. Engage the last corner slide to close the pit.



8. For the double slide rail, snap-in detail in external rail.



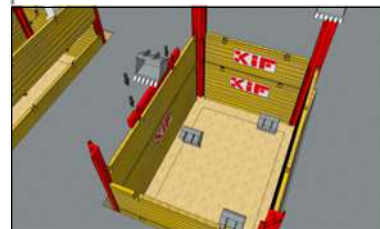
9. The excavation work can begin, as can the lowering of the posts. Press down alternately with a full bucket on the components, ensuring that the posts are vertical. DIG & PUSH METHOD.



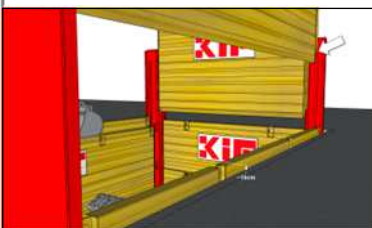
10. When the assembly is at a depth of ~2.40m, insert the top panels over the base panels.



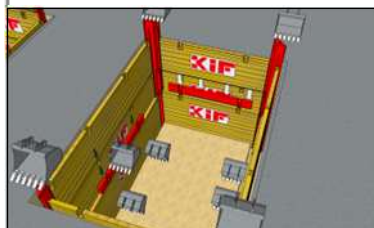
11. Engage the pins in the base-top link.



12. Continue digging by alternately pressing down on the panels and slides, ensuring that they are horizontal and vertical respectively. Use the plate protector to respect your equipment.



13. For depths greater than base+top, the base panels are now locked into the inner rails, always cutting edge towards the excavation.



14. Continue trimming by pressing on the slide rail and inner panels. DIG & PUSH METHOD



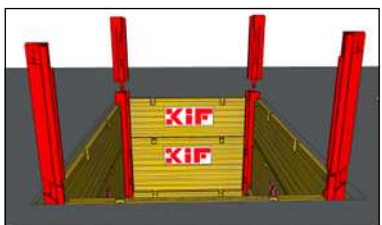
15. Finalise excavation until the required depth.

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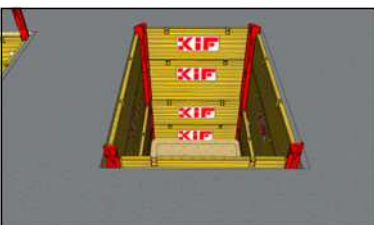
Specific cases



16. For depths greater than this, rail extensions will be superimposed.



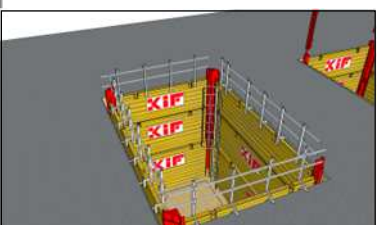
17. Then, Top panels are then snapped onto the base panels at the bottom of the excavation (in the inner rail)..



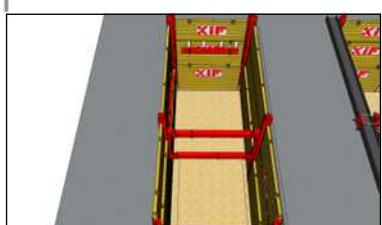
18. The descent by haulage then continues to reach great depths.



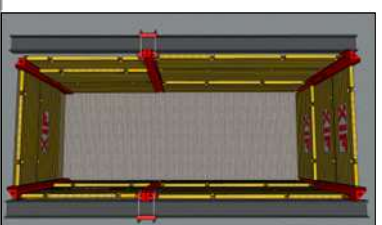
19. Interior view.



20. Secure the perimeter of the pit and access to it



21. Can be combined with standard trench rails.



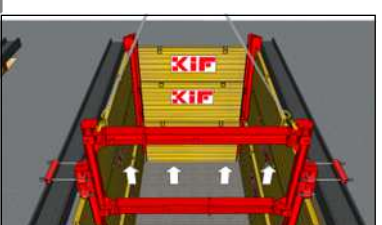
22. Removal of intermediate abutments to free up a significant area.



23. Low berm consisting of a concrete slab.



23. Installation of an upper water by means of a beam girder with a large cross-section.



24. Once the top and bottom stop blocks (slab and water) are in place, the sliding rolling frame can be raised.



25. ...until it comes out completely.

PV - Assembly and Installation

Slide rail system



Example of top link brackets:

Clamping system linking the rail head to a steel girder with a cross-section of up to 500mm.
Easy to install, making it possible to remove intermediate stays.

